

WHAT IS CLAIMED IS:

1. A method comprising a receiving device performing the steps of:
receiving a transmitted signal comprising a plurality of sub-channels;
operating in a first decoding mode to decode one or more sub-channels of
5 the plurality of sub-channels, thereby yielding control information;

if the control information includes indicia of payload directed to the
receiving device, operating in a second decoding mode to decode one or more
additional sub-channels of the plurality of sub-channels, thereby yielding payload
information.

2. The method of claim 1, wherein in the first decoding mode, the
receiving device decodes payload sub-channels that include the control
information.

3. The method of claim 1, wherein in the first decoding mode, the
receiving device decodes only designated control sub-channels.

4. The method of claim 3, wherein in the second decoding mode, the
receiving device decodes the control sub-channels and the one or more additional
sub-channels.

5. In a wireless communication system adapted for communicating
information in M sub-channels spanning a bandwidth B_M , a method comprising:
sending control information, from a sending device to a receiving device,
25 in one or more control sub-channels of the M sub-channels occupying a first
portion of the bandwidth B_M .

6. The method of claim 5, wherein the sending device is a base station and
the receiving device is a radio communication unit.

if the payload information can be communicated via the control sub-channels, sending the payload information to the receiving device via the one or more control sub-channels.

5 14. The method of claim 13, further comprising:
 decoding, by the receiving device, the control sub-channels to receive the
 payload information.

10 15. The method of claim 14, wherein the step of decoding the control sub-
 channels comprises the receiving device decoding only the control sub-channels.

15 16. The method of claim 13, comprising, if the payload information can
 not be communicated via the control sub-channels,
 sending the payload information to the receiving device in one or more
 payload sub-channels of the M sub-channels occupying a second portion of the
 bandwidth B_M .

20 17. The method of claim 16, further comprising:
 decoding, by the receiving device, the payload sub-channels to receive the
 payload information.

 18. The method of claim 17, wherein the step of decoding the payload
 sub-channels comprises the receiving device decoding the full bandwidth B_M .

25 19. The method of claim 16 wherein, prior to sending the payload
 information, the sending device performs the steps of:
 sending, via the control channels, a message informing the receiving
 device to decode the one or more payload sub-channels to receive the payload
 information.

30

20. A communication device comprising:
an antenna for receiving a transmitted signal comprising M sub-channels;

and

5 a decoding element for independently decoding each of the M sub-channels, the decoding element being operable in a first decoding mode to decode one or more control sub-channels of the M sub-channels and in a second decoding mode to decode one or more payload sub-channels of the M sub-channels.

10 21. The communication device of claim 20, wherein in the first decoding mode, the decoding element decodes only the control sub-channels.

15 22. The communication device of claim 20, wherein in the second decoding mode, the decoding element decodes the control sub-channels and the payload sub-channels.